

# SkyhawkRC F700 user manual

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Thanks for using SkyhawkRC F700 aircraft. Please read this manual carefully before operation, it will help you understand this product deeply and make sure to operate it safely and correctly(**the aircraft has been tested well before delivery, parameters has been set and matched properly, please do not adjust the trimming button if unnecessary in order to avoid the aircraft appearing incapable of flight**).



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## I . Disclaimer

This product is remote controlled aircraft, wrong and impertinent operation will cause unintended consequences. We will not bear any legal responsibility in the process of use. If you use this product, it indicates that you have accepted this clause.

## II. Notice

1. Under the age of 16, after drinking or taking drugs person cannot operate this product.
2. If you are beginners, please operate under the guidance of experienced professionals.
3. Please stay away from the crowd while operation, please to operate in special site.
4. This product supports 4S Li-Po battery.
5. Please ensure the battery has enough power before flight, ensure the receiver is connected correctly, make sure all plugs no loose or fall off, ensure all spare parts are of no damage, fuselage structure and propellers no loose and screws without loss. Otherwise, please do not fly.
6. Please do not operate under bad weather or the temperature below 5 degrees.
7. Please do not modify this product without our permission, otherwise, it will be out of warranty and we will not take any responsibility caused by modification.
8. Be sure to use the original accessories.

## III. Product Brief Introduction

1. F700 is an entry-level aerial photography aircraft. Easy to operate and carry, flexible operation, stable performance, ready to fly, avoid tedious installation and debugging. Its working mode divides into manual mode, GPS position hold mode and auto return home mode, can control two axis gimbal stabilization, also can update and connect with wireless video transmission module and ground station module.

### 2. Configuration and Specification

Item	Description	Specification	Quantity	Unit
1	Body	3K carbon fiber+industrial plastic	1	set
2	Arm	3K carbon fiber+industrial plastic	6	pieces
3	Landing Gear	3K carbon fiber+industrial plastic	1	set
4	Motor	C3510 KV560	6	pieces
5	Propeller (option)	1255 plastic	3	pairs
		1355 carbon fiber		
6	Gimbal (option)	2 axis brushless ( available to GOPRO )	1	set
7	Brushless ESC	3-5S 20A high-speed	6	pieces
8	Flight Controller	GPS+INS	1	set

### 3. Technical Parameter

Max Spread Size	990x990x360	mm
Color Box Size	820x355x170	mm
Aluminum Case Size	800x335x270	mm
Motor Distance	690	mm
Propeller	1255 plastic	inch
	1355 carbon fiber	inch
Battery	1*LiPo 4S 10000mAh	pc
Aircraft Weight	Not include battery and receiver	1800g
Take Off Weight	4S 10000mAh battery + receiver	2500g
Max Take Off Weight	1PC 4S 10000mAh battery	3700g
Safety Payload	GOPRO	≤1000g
Max Payload	1PC 4S 10000mAh battery	≤1200g
Flight Distance	Sight range ( limit by remote controller )	about 1000m
Flight Time 1	4S 10000mAh 1PC battery、 receiver	about 25min
Flight Time 2	4S 10000mAh 1PC battery、 receiver、 gimbal + GOPRO	about 20min
Wind Resistance	≤5	class

## IV. Function Introduction

### 1. Manual Mode

Under manual mode, it comes with auto stabilization function, manual control its flight height of aircraft and forward/backward, left/right, up/down, turn left/right operations.

### 2. GPS Positon Hold Mode

Under hovering mode, adjust the throttle stick and rudder stick to the middle position, it will lock current flight height and position. Meanwhile, you can also change the positon of aircraft by two sticks, it will lock new flight height and positon after loosing sticks.

### 3. Auto Return Home Mode

After auto return home mode starts, it is completely controlled by flight controller, flight controller will control the aircraft rotate and adjust the front to return point and return to taking off position and turn off throttle automatically while landing. (In this mode, aircraft has 20 meters protection height limit, if the return point height is lower than 20 meters, it will climb to 20 meters firstly and then return home).

#### 4. Gimbal stabilization

M700 aircraft can control the stabilization of 2 axis gimbal, while equipped with brushless gimbal, please refer to user manual of brushless gimbal carefully.

#### 5. Available to FPV Video Transmission Module and Ground Station

**First Person View (FPV)** It is available to connect video transmission module and transmit live video to ground by video transmission system, enjoy the pleasure of FPV. Meanwhile, stabilization, hovering and auto return home functions will help you relieve the difficulty of operation.

**Ground Station(GCS)** Also, it is available to ground station, can live monitor aircraft's flight data and working states and operate by ground station(GCS).

### V. Operation Introduction

#### 1. Check all accessories



#### 2. Open folded landing gears and arms



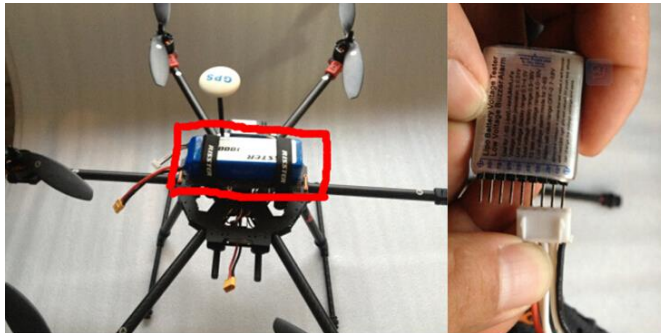
#### 3. Install the propellers and lock clips according the order of numbers.



**4. Install the GPS bar on center board.**



**5. Fasten battery on battery board and insert battery alarm(suggest to set battery alarm to 3.6V/S).**



**6. Check all below photo sticks in top position and turn on transmitter.**



**7. Pull sticks to start motors.** Detailed process as below : connect battery, switch CH5 to manual mode, indicator state shows blue single flash. Pull the throttle stick and rudder stick to the lowest position(mode 2 for example), left throttle pull to left bottom, right ruder pull to right bottom, pull two sticks as “/” type and keep the action about 3-5 seconds, loose, push throttle stick slightly to start motors. After motors starting running, check if the motors are controlled by controller. While throttle stick pulls to the lowest position, motors will stop running.



**Attention:**

- (1) Both manual mode and position hold mode can start motors in this way.
- (2) Under position hold mode, before taking off, you need to push the throttle to at least half position. There is no limit under manual mode.
- (3) Execute the operation, if no pushing throttle stick operation in 6 seconds, the motors will stop running

and locked automatically. For taking off, you need to execute this operation again.

(4) Under manual mode, if throttle stick is not in lowest position, motors will not stop running.

(5) Under position hold mode, flight height lands minimum and flight controller detected no flight height change, motors will stop running and lock throttle at the same time.

(6) Auto return home mode, all operations will be controlled by flight controller and all operations of sticks are invalid for the time being.

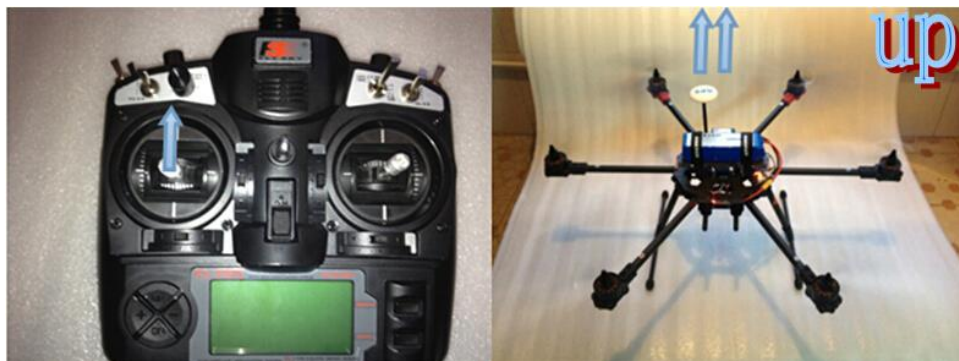
(7) Under strong wind flight environment, atmospheric wave volatiles heavily. There is possibility that motors cannot stop running under GPS position hold mode and auto return home mode, in this situation, you only need to pull the throttle stick to the lowest position and switch flight mode to manual mode, the motors will stop running.

**8. Check the working state of indicator light and take off while GPS signal is good or very good. Indicator Light working state as below:**

No.	Working Mode	Indicator Light	GPS signal normal	GPS signal good	GPS signal very good
1	Manual Mode	•	•	••	•••
2	Position Hold Mode	••	•	••	•••
3	Auto Return Home Mode	•••	•	••	•••
4	Need Gyro Initialization	••••			
5	Initializing	⬭			
6	Vibration large	⬭			

**Attention: Vibration indicator light is prior to GPS indicator light, make sure gyro do not need initialization, and then will you know if the GPS is normal or not.**

**9. Up/down, rotate left/right, forward/backward, left/right actions.**

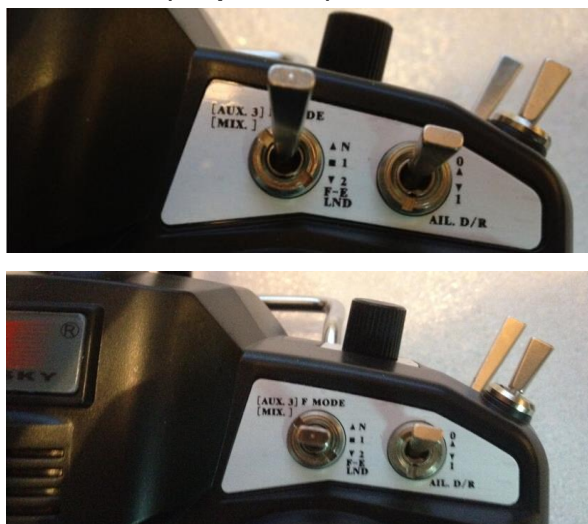










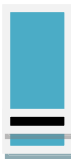
10. Manual mode(“N”position) , GPS position hold mode(“1”position), auto return home mode(“2”position).







Remote control 3-level switch diagram

Flight Mode	CH5 Position	Instruction
Manual Mode		<b>Any emergency happened , please switch to manual mode in time in case of aircraft fly away.</b>
Position Hold Mode		Fly about 1-3min(s) under manual mode, then switch to 2-level, throttle stick in center is position hold, you can also change throttle stick and rudder stick to operate it change flight directions, loose sticks, it will stay in new positon and hold in new position.
Auto Return Home Mode		Default taking off point as return position(if return point shift, you can switch it to manual mode or position hold mode to land it)

## VII. Other Attentions

1. While aircraft is stable under manual mode, can switch to position mode. Under manual mode and auto return home mode, the height is controlled by aircraft automatically, throttle stick need to be put in the middle position, while throttle stick put in the middle position, flight height is locked automatically. There are 2 points are very important, switch from manual mode to position hold mode, remember to put the throttle stick to the middle position in time, otherwise, it may cause climb or drop, it is decided by the position of throttle stick. To switch from position hold mode to manual mode, change the the throttle stick position to position hold position in time, otherwise, it may cause climb or drop suddenly. Please do not take off while the GPS signal is not good, should take off until GPS green indictor light flashes 2 times continuously.
2. Height Hold Control: The control performance is much better while the height is higher than 2 meters from ground. If GPS not connected, switch to hovering mode or auto return home mode, it will switch to height hold mode.
3. GPS Position Hold Mode: under position hold mode, you can operate sticks to change the positon of aircraft, while let sticks go, it will hover in new position.
4. Gyro Initialization: keep the aircraft still, if red indicator light flashes in a row, indicates it needs gyro initialization. To execute this operation, must operate while the motors stopping running, the execute is invalid while motors running. Gyro initialization process:

- (1). Connect battery to aircraft and keep still(no any vibration).
- (2). Switch to manual mode("N" position) .
- (3). Switch between manual mode("N" position") and position hold mode("1" position) for 6 times and two switch time interval not longer than 3 seconds, process: "N" position→ "1" position →"N" position→"1" position→"N" position→"1" position→"N" position→"1" position→"N" position→"1" position→"N" position→"1" position→"N" position→"1" position
- (4). White indicator light of aircraft light up about 1 second.
- (5). Gyro initialization ends while white light goes out.

#### 5. Compass calibration

Magnetic filed sensor is in-built on flight controller, it can detect general orientation, if magnetic field is interfered, it will fly in a circle and cannot hover accurately while in hovering mode. At this situation, it will need recalibrate the magnetic field sensor. Calibration magnetic filed sensor method: Start motors and take off, switch the aircraft to position hold mode, operate rotate left/right more than 3 circles, flight controller will recalibrate magnetic field. This operation is very critical, it will directly affect its hovering performance.

**Attention: if need save permanently the calibration value of magnetic field, you must land and wait GPS relocked and take off later, also, save the calibration value of magnetic filed by gyro initialization.**

6. If not use the remote controller from factory, please pay attention to the receiver connection cables. Receiver connection cables is according to the color order.



- a) At least 6channel RC receiver.
- b) The first 4 channels of receiver are respectively for output aileron(channel 1), elevator(channel 2) throttle(channel 3) and rudder(channel 4).
- c) It will need a three-level switch(SW1) to control its working mode.
- d) Blue cable(SW2) is unused, can not be connected.

Cable Color	Receiver Channel	
White(together with red/black cable)	aileron	Channel 1
Orange	elevator	Channel 2
Green	throttle	Channel 3
Yellow	rudder	Channel 4
Brown	Three-level switch SW1	Channel 5
Blue	Three-level switch SW2	Channel 6

**Attention on controller setup.**

**Controller choose aircraft control mode, close all mix control setup, all bars quantity schedule must be set to  $\pm 100\%$  , cancel all control curve setup. Fine-tuning positions of rockers are all set to middle position.**

**Feedback**

**If you have any questions about our products, please feel free contact us by following :**

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